

**REMARKS/ARGUMENTS**

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***Brief Summary of Status (of office action mailed on 05-07-2008 (Part of Paper No./Mail Date 20080414))***

Claims 62-115 are pending in the application.

Claims 62-115 are rejected.

***Claim Rejections - 35 U.S.C. § 112***

1. In the office action, the Examiner states:

“Claims 62-115 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.” (office action, Part of Part of Paper No./Mail Date 20080414, p. 2).

***Claim Rejections - 35 U.S.C. § 101***

2. In the office action, the Examiner states:

“Claims 62-115 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.” (office action, Part of Part of Paper No./Mail Date 20080414, p. 6).

***Claim Objections***

3. In the office action, the Examiner asserts that:

Claims 62-71 are objected to because of informalities. (office action, Part of Part of Paper No./Mail Date 20080414, p. 10).

***Claim Rejections - 35 U.S.C. § 102***

4. In the office action, the Examiner states:

“Claims 62-67, 72-77, 82-86, 91 -94, 99-101, 106-108 and 113 are rejected under 35 U.S.C. 102(b) as being anticipated by Mottier (“Influence of tentative decisions provided by a Turbo-decoder on the carrier synchronization: Application to 64-QAM signals”, COST 254 Workshop on Emerging Techniques for Communication Terminals, Toulouse France July 7-9, 1997, pages 326-330).” (office action, Part of Part of Paper No./Mail Date 20080414, p. 11).

*Claim Rejections - 35 U.S.C. § 103*

4. In the office action, the Examiner states:

“Claims 68, 70, 71, 78, 80, 81, 87, 89, 90, 95, 97, 98, 102, 104, 105, 109, 111, 112, 114 and 115 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mottier as applied to claims 62, 72 and 82 above, and further in view of Applicant Admitted Prior Art (AAPA).” (office action, Part of Part of Paper No./Mail Date 20080414, p. 24).

5. In the office action, the Examiner states:

“Claims 69, 79, 88, 96, 103, 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mottier as applied to claims 62 and 72 above, in view of AAPA, and further in view of Robertson et al., “Bandwidth-Efficient Turbo Trellis-coded Modulation Using Punctured Component Codes,” IEEE Journal on Selected Areas in Communications; 0211 998, p.p. 206-218, Vol. 16, No. 2).” (office action, Part of Part of Paper No./Mail Date 20080414, p. 27).

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*Claim Rejections - 35 U.S.C. § 112*

1. In the office action, the Examiner states:

“Claims 62-115 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.” (office action, Part of Part of Paper No./Mail Date 20080414, p. 2).

The Applicant respectfully traverses.

The Applicant respectfully points out that FIG. 4 of the Applicant’s drawings clearly at least one embodiment in which every symbol and/or signal output from the Viterbi decoder 301 would be directly provided to a decoder (e.g., a turbo decoder). The Applicant respectfully points out that an inverse interleaver 401 is employed in the turbo-encoder 403 in FIG. 4.

Moreover, with respect to the Applicant’s FIG. 3 (to which the Examiner seems to be referring), the Applicant respectfully believes that one having skill in the art to which the invention pertains, when considering subject matter included within the Applicant’s originally filed specification (including figures and written description), would understand and comprehend that the switch 303 that controls signals provided to Viterbi decoder 301 in FIG. 3 corresponds to a signal employed for a synchronization module. Also, the written description of FIG. 3 explicitly teaches and discloses that “switch 303 is added to the Viterbi decoder 301 so that only the symbols from trellis encoder 203 or trellis encoder 207 are used by the phase detector 217 to adjust the controlled oscillator 223.”

Clearly, when considering FIG. 3, the signal output from the multiplier 213 (i.e., before the switch 303 of FIG. 3, which shows the acquired and tracked signal) would be provided to a turbo decoder to make estimates of turbo encoded bits encoded therein (e.g., or first to a separate slicer or a separate Viterbi decoder and then to such a turbo decoder to make estimates of turbo encoded bits encoded therein). This would be clear to one having skill in the art to which the invention pertains. In FIG. 3, switch 303, Viterbi decoder 301, phase detector 217, controlled oscillator 223, and multiplier 213 operate to

perform acquisition and tracking (e.g., “in order to synchronize the frequency of the VCO 223”).

Clearly, if not all of the symbols (i.e., only “every other symbol”) is provided to a synchronization module “in order to synchronize the frequency of the VCO 223”, then the output from the multiplier 213 would also be provided to a decoder (e.g., or first to a separate slicer or a separate Viterbi decoder and then to such a decoder).

The Applicant respectfully points out that the direct output from the Viterbi decoder 301 to a turbo decoder in FIG. 4 is effectuated, at least in part, by the use of the inverse interleaver 401 that is within the turbo encoder 403; in addition, the use of the inverse interleaver 401 ensures that “every symbol can be used by the Viterbi decoder 301 in order to synchronize the frequency of the VCO 223”. This includes symbols encoded and output from both of the trellis encoder 203 and the trellis encoder 207 to be employed “in order to synchronize the frequency of the VCO 223”.

Nonetheless, the Applicant respectfully points out that, in considering the amendments herein of the Applicant’s claimed subject matter, reference to a switch in the Applicant’s claimed subject matter is within a communication device that includes turbo encoder (e.g., not a receiver device as the Examiner seems to refer to in these 35 U.S.C. § 112 rejections).

The Applicant respectfully asserts that the Applicant’s claimed subject matter, does in fact contain subject matter that is described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Moreover, the Applicant respectfully asserts that the Applicant’s claimed subject matter would be properly understood by one having skill in the art to which the invention pertains, when considering subject matter included within the Applicant’s originally filed specification (including figures and written description).

As such, the Applicant respectfully requests that the Examiner withdraw these rejections.

***Claim Rejections - 35 U.S.C. § 101***

2. In the office action, the Examiner states:

“Claims 62-115 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.” (office action, Part of Part of Paper No./Mail Date 20080414, p. 6).

The Applicant respectfully traverses.

The Applicant’s comments made above are also applicable here.

The Examiner asserts “The Viterbi decoder also has a switch to avoid that signals coming from the second trellis encoder (207) reach the Viterbi decoder, for this reason the signals from the second Viterbi decoder do not enter the Viterbi decoder, and consequently they will not enter the turbo decoder.”

The Applicant has addresses this above (e.g., see comments with respect to Applicant’s FIG. 3 and FIG. 4). Again, in Applicant’s FIG. 4, the use of the inverse interleaver 401 ensures that “every symbol can be used by the Viterbi decoder 301 in order to synchronize the frequency of the VCO 223”.

The Applicant respectfully asserts that the Applicant’s claimed subject matter would be properly understood by one having skill in the art to which the invention pertains, when considering subject matter included within the Applicant’s originally filed specification (including figures and written description).

The Applicant respectfully asserts that claims 62-115 are in fact operative and do have utility.

As such, the Applicant respectfully requests that the Examiner withdraw these rejections.

### *Claim Objections*

3. In the office action, the Examiner asserts that:

Claims 62-71 are objected to because of informalities. (office action, Part of Part of Paper No./Mail Date 20080414, p. 10).

The Applicant has amended certain of the claims.

As such, the Applicant respectfully requests that the Examiner withdraw these objections.

4. In the office action, the Examiner states:

“Claims 62-67, 72-77, 82-86, 91 -94, 99-101, 106-108 and 113 are rejected under 35 U.S.C. 102(b) as being anticipated by Mottier (“Influence of tentative decisions provided by a Turbo-decoder on the carrier synchronization: Application to 64-QAM signals”, COST 254 Workshop on Emerging Techniques for Communication Terminals, Toulouse France July 7-9, 1997, pages 326-330).” (office action, Part of Part of Paper No./Mail Date 20080414, p. 11).

The Applicant respectfully traverses.

The Applicant has amended certain of the claims.

The Applicant respectfully points out that, in order to support a proper rejection under 35 U.S.C. §102, a singular reference must teach and disclose each and every limitation of the subject matter as claimed by the Applicant. If the singular reference fails to teach and disclose each and every limitation of the subject matter as claimed by the Applicant, the rejections under 35 U.S.C. § 102 should be withdrawn.

The Applicant respectfully points out that Mottier explicitly teaches and discloses that, because output from only “the first decoder DEC1” of the turbo encoder in FIG. 3 of Mottier is employed in accordance with the “carrier recovery loop”, a combination of “symbol tentative decisions encoded by C1 and bit hard decisions encoded by C2 are employed.”

Clearly, it is the use of “tentative decisions” in Mottier that are used in the carrier synchronization therein (i.e., entitled “Influence of tentative decisions provided by a Turbo-decoder on the carrier synchronization: Application to 64-QAM signals”).

On p. 327, in section 3.1 “Effect on reliability”, Mottier teaches and discloses:

“The first decoder DEC1 only treats the bits encoded by the first encoder C1. The reliability of the bits issued from the second encoder is not improved. Thus, the construction of a symbol tentative decision issued from DEC1 relies on bit tentative decisions encoded by C1 and bit hard decision encoded by C2. By an appropriate bit multiplex of tentative and hard decision in relation to the puncturing matrix, the tentative symbol  $d^{\sim}(k)$  is generated.” (emphasis added)

Clearly, Mottier does not rely on the use of tentative decisions made from successive symbols of a received signal in performing carrier recovery, and Mottier does

not rely on the use hard decisions made from successive symbols of a received signal in performing carrier recovery. In other words, the same type of decision is not made and employed for successive symbols of a received signal in performing carrier recovery in Mottier.

Clearly, it can be seen that a combination of both “bit tentative decisions encoded by C1 and bit hard decision encoded by C2” are employed to form the “symbol tentative decision issued from DEC1”.

Moreover, since it is clear in Mottier that the “reliability of the bits issued from the second encoder is not improved”, there is no reliability measure employed from those bits (i.e., that is apparently why “bit hard decision encoded by C2” is employed therein when making a “symbol tentative decision issued from DEC1”).

Also, since Mottier explicitly teaches and discloses that the “first decoder DEC1 only treats the bits encoded by the first encoder C1”, it appears clear that the “first decoder DEC1” does not treat the bits encoded by the second decoder C2.

Moreover, in another portion of Mottier, on p. 327, in section 2.2 “Turbo-decoding principle”, Mottier teaches and discloses:

“The coding structure relies on the parallel concatenation of two simple convolutional codes C1 and C2 that are recursive and systematic.

The decoding process is based on the serial concatenation of decoder DEC1 and DEC2. Both using Soft Output Viterbi Algorithm (SOVA). DEC1 decodes the C1 code while DEC2 decodes the C2.” (emphasis added)

As can be seen, Mottier explicitly teaches and discloses (in more than one location) that the decoder DEC1 in Mottier “only treats the bits encoded by the first encoder C1”.

The Applicant respectfully points out that, in accordance with turbo encoding, symbols are alternatively output from a top path and a bottom path (e.g., a trellis encoder 203 and trellis encoder 207 as the Applicant teaches and discloses) to for an output signal from a turbo encoder.

FIG. 3 of Mottier clearly shows only the output from DEC1 is employed in accordance with Mottier’s “Carrier Recovery Loop”, and Mottier clearly teaches and

discloses that the “first decoder DEC1 only treats the bits encoded by the first encoder C1” and “DEC1 decodes the C1 code while DEC2 decodes the C2”.

As such, it seems that Mottier does not employ any bits encoded by the second encoder C2 in accordance with Mottier’s “Carrier Recovery Loop”.

As is also clear, when operating a zero delay of “Tr” in Mottier (e.g., “Tr” is the “delay Tr in the carrier recovery loop” in Mottier), clearly no influence of any decoding in DEC2 is employed in accordance with Mottier’s “Carrier Recovery Loop”.

In contradistinction, the Applicant claims subject matter in which symbols selected from first encoded data and second encoded data (e.g., as encoded by both a first trellis encoder and a second trellis encoder such as in a turbo encoder) do in fact influence the operation of a synchronization module in accordance with the subject matter as claimed by the Applicant.

Again, it seems clear that Mottier does not employ any bits encoded by the second encoder C2 in accordance with Mottier’s “Carrier Recovery Loop” (e.g., that only receives a signal from DEC1).

In view of at least these comments made above, the Applicant respectfully believes that these independent claims rejected above are patentable over Mottier.

The Applicant respectfully believes that these dependent claims rejected above, being further limitations of the subject matter as claimed in allowable independent claims, respectively, are also allowable.

As such, the Applicant respectfully requests that the Examiner withdraw the rejections of these claims under 35 U.S.C. § 102(b) as being anticipated by Mottier.

#### *Claim Rejections - 35 U.S.C. § 103*

4. In the office action, the Examiner states:

“Claims 68, 70, 71, 78, 80, 81, 87, 89, 90, 95, 97, 98, 102, 104, 105, 109, 111, 112, 114 and 115 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mottier as applied to claims 62, 72 and 82 above, and further in view of Applicant Admitted Prior Art (AAPA).” (office action, Part of Part of Paper No./Mail Date 20080414, p. 24).

The Applicant respectfully traverses.

The Applicant has amended certain of the claims.

The Applicant's comments made above are also applicable here.

The Applicant respectfully asserts that Mottier and the Examiner's characterized "AAPA", when considered individually or together, fails to teach and disclose the subject matter as claimed by the Applicant in these claims.

As such, the Applicant respectfully requests that the Examiner withdraw the rejection of these claims under 35 U.S.C. § 103(a) as being unpatentable over Mottier as applied to claims 62, 72 and 82 above, and further in view of Applicant Admitted Prior Art (AAPA).

5. In the office action, the Examiner states:

"Claims 69, 79, 88, 96, 103, 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mottier as applied to claims 62 and 72 above, in view of AAPA, and further in view of Robertson et al., "Bandwidth-Efficient Turbo Trellis-coded Modulation Using Punctured Component Codes," IEEE Journal on Selected Areas in Communications; 0211 998, p.p. 206-218, Vol. 16, No. 2)." (office action, Part of Part of Paper No./Mail Date 20080414, p. 27).

The Applicant respectfully traverses.

The Applicant has amended certain of the claims.

The Applicant's comments made above are also applicable here.

The Applicant respectfully asserts that Mottier, Robertson, and the Examiner's characterized "AAPA", when considered individually or together, fails to teach and disclose the subject matter as claimed by the Applicant in these claims.

As such, the Applicant respectfully requests that the Examiner withdraw the rejection of these claims under 35 U.S.C. § 103(a).

The Applicant respectfully believes that claims 62-115 are in condition for allowance and respectfully requests that they be passed to allowance.

The Examiner is invited to contact the undersigned by telephone or facsimile if the Examiner believes that such a communication would advance the prosecution of the present U.S. utility patent application.

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